

INTEGRAL MEAN VALUE BOUNDS FOR h -CONVEX FUNCTIONS

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ABSTRACT. Let I and J be intervals in \mathbf{R} , $(0,1) \subseteq J$ and let $h : J \rightarrow \mathbf{R}$ be a non-negative function, $h \neq 0$. We say that $f : I \rightarrow \mathbf{R}$ is an h -convex function if f is non-negative and for all $x, y \in I$, $\alpha \in (0,1)$, we have

$$f(\alpha x + (1 - \alpha)y) \leq h(\alpha)f(x) + h(1 - \alpha)f(y).$$

The h -convex functions are a generalization of non-negative convex, s -convex, Godunova-Levin functions and P-functions. This observation leads us to the unified treatment of these several varieties of convexity. Some properties of h -convex functions are discussed. Especially, integral mean value bounds for h -convex function and related results are derived.